2: Fortes E-5 (1934-1937) 1945
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to another, ranging from 25 inches to 45 inches per annum, but fluctuations occur from year to year in the same area. Erratic or abnormal rains may so disturb the cycle of food production as to subject a majority of the population to severe privation. The temperature in the vicinity of 10° 30′ N. latitude and 0° 30′ W. longitude varies from a minimum of about 70° F. to a maximum of about 93° F. A characteristic feature of the dry season is the harmattan, a hot parching wind laden with fine dust which blows from the Sahara, so strongly at times as to obscure the landscape in a haze which limits visibility to a few hundred yards. Heavy dew and mists cause the mornings to be chilly and bracing, so much so that the natives squat shivering round fires or remain indoors until the sun is high; from the forenoon until about 4 p.m. the sun blazes relentlessly through the faint haze; sunset ushers in a cool and balmy evening; and night brings a relatively marked drop in temperature. Violent nocturnal tornadoes from the east and north-east, accompanied by lightning and thunder, introduce the rainy season, during which the prevailing wind blows from the direction of the Gulf of Guinea, to the south and south-east. During this season the temperature remains fairly stable throughout the day. Though it is never as hot as in the hottest days of the dry season, the humidity makes it at times excessively oppressive. The peak of the rains comes in August–September. It rains so heavily then that many social activities are impeded. These conditions of vegetation and climate fundamentally influence the economy and the social life of the inhabitants of the Sudanese Zone.

This book is concerned with the population of a very small section of the Sudanese Zone, a part of the region drained by the Volta river system. The head-waters of this system lie in French West Africa. About 20 miles south of the international boundary between the Gold Coast and French Ivory Coast, which has been arbitrarily fixed to coincide approximately with the eleventh parallel N. latitude, the Red Volta flows into the White Volta. Between these two rivers, on the east and south respectively, and the Sissili river on the west lies an area, arbitrarily truncated on the north by the international boundary, comprising two of the most heavily populated administrative districts of the Gold Coast. The eastern third of this area constitutes the administrative district of Zuarungu, the remaining two-thirds the district of Navrongo. The Red Volta separates Zuarungu district from another administrative unit, Kusasi, and the White Volta forms a natural boundary between it and the Mamprusi district, to the south of which lies the territory of the Dagomba.

As the following table[1] from the census of 1931 shows, the Zuarungu district is the most densely populated part of this area; and as the population tends to be concentrated in the centre and north, the actual density of settlement exceeds the figures given. In some localities this is reflected

[1] See *Appendices containing Comparative Returns and General Statistics of the 1931 Census*, Gold Coast, 1932, p. 3; and Cardinall, A. W., *The Gold Coast*, 1931, Population Map, p. 156. Mr. Cardinall remarks (p. 123) that 'A majority of the census officers were of opinion that the figures collected by them are lower than they should have been by from 2 per cent. to 10 per cent.'—a contingency inevitable in a country which is for the most part still pre-literate.

2: Fortes E-5 (1934-1937) 1945
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in serious soil erosion due to over-cultivation and in the diminution of uncultivated bush land, so that firewood and other sylvan products cannot be found within six or more miles of the settlements.

District	*Area*	*Population*	*Density per sq. mile*
Navrongo . .	1,551	120,870	77·96
Zuarungu . .	781	133,981	171·55
Kusaasi* . .	1,227	151,715	123·64
Mamprusi* .	2,719	61,520	22·62
Dagomba* . .	12,257	191,956	15·66

* Partly in Mandated Territory of Togoland.

In spite of the general similarity of climate and vegetation in the Sudanese Zone, local variations produce significant ecological differences. This is shown in the Northern Territories of the Gold Coast by the differences in agriculture north and south of the Gambaga scarp. The steep scarp marks both a geological and an ecological line of division. South of it the rock formations are of sandstone and shale, north of it granite, quartz, and greenstone predominate. South of the scarp a form of shifting cultivation is customary, and yams (*Dioscorea* spp.) are grown on a large scale side by side with millet (*Pennisetum typhoides*, var.), guinea corn (*Sorghum vulgare*), and maize (*Zea mays*). North of it yams will not grow easily and cereal crops form the staple food supply.[1]

The relative scarcity of population in the yam-growing districts compared with the congested areas north of the White Volta may be due to unknown historical and cultural factors, but endemic diseases have undoubtedly impeded population growth. While malaria, yaws, and leprosy, to mention only the commonest enemies of native health, are widespread throughout the Northern Territories of the Gold Coast, sleeping-sickness is also endemic throughout the Mamprusi and Dagomba districts. In the central sectors north of the scarp sleeping-sickness occurs only sporadically near the rivers.

Topographical differences also appear to influence the distribution of population. The high plateau which stretches from the White Volta northwards is more suited for permanent habitation than the low-lying flats which make up the greater part of Mamprusi and Dagomba. In the wet season they turn into quagmires, in the dry season they are arid tracts seriously short of water-supplies. North of the White Volta numerous streams and small rivers combine with the relatively greater elevation to drain the plateau effectively during the heavy rains; and though surface water becomes scarce in the dry season, shallow pits generally provide sufficient water for normal needs.

The district of Zuarungu is a typical portion of the Trans-Volta plateau. A number of bouldery hills from 100 to 500 feet high are scattered over its undulating surface. The most conspicuous are the Tong Hills, a small range stretching for about four miles just north of the river. It adds an

[1] Cf. Fortes, M. and S. L., 'Food in the Domestic Economy of the Tallensi', *Africa*, ix. 2, 1936; and Lynn, C. W., op. cit.

7:Lynn G-5 (1932-1936) 1937 FE11 Tallensi FE11

millet and "fixed" cultivation. The Red and White Volta Rivers rise in French Territory and flow south through North Mamprusi until they reach the foot of the scarp; here they join, and flow westward. With their tributaries the Voltas drain the whole district; they are fed mainly by surface water and from being practically dry in the dry season, they become deep, swift-moving rivers in the rains, flooding their banks and doing considerable damage to road communications. 133 241

The surface of the country is gently undulating and outcrops of granitic rocks are common. Small stony hills occur sporadically and a definite range, the Tong Hills, runs north-east through the district from Shia in Zuarungu Area, almost to Bawku in Kusasi Area. The average height of the district is between 600′ and 700′ above sea level.

Soil.

The soils of North Mamprusi are mainly derived from granodiorite. They are greyish-brown in colour and contain a high proportion of sand and gravel which makes them course in texture. Ridges of quartz occur in some places and in their vicinity the soil is very stony. In valley lands the soil is heavier, due to an accumulation of finer particles washed down from the surrounding slopes; this soil becomes very wet in the rainy season and is seldom cultivated, although it is capable of growing excellent crops of rice. Odd patches of laterite stone are found but they are not common. Parts of the Tong Hills are composed of greenstone, a rock which weathers to a rich red colour and gives rise to a fertile but exceedingly stony soil. In cultivating, the people shift the stones into contoured heaps against which the soil packs forming terraces; examples of these can be seen around Dutsi, Zanlerigu, and Nangodi. In the middle of the rainy season—July, August, and September—the water-table rises rapidly and large portions of the district become water-logged. 134

Soil Erosion.

Close arable farming with no enclosure of fields, together with the undulating surface of the country, the open nature of the soil, and the practice of burning almost every particle of vegetal ground cover during the dry season, result in very serious sheet erosion of the soil, particularly at the beginning of the rains; streams and rivers are darkly coloured by the matter carried away in suspension. The resulting loss of fertility is considerable and the stony nature of the soil is accentuated, making cultivation more

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134 difficult. In areas where the flow of storm water is particularly swift, the top soil has been completely scoured away, leaving bare expanses of sub-soil. Where this has occurred close to roads, the rapid run-off results in considerable damage. After a very heavy rain sections of the road may be washed completely away. (An example of this occurred in August, 1936, on the road between Bolgatanga and Zuarungu.)

Primitive Nature of the People.

105 The people of North Mamprusi are divided into a number of tribes; they differ in their customs and speak different dialects of Mole, but their methods of living and farming are the same. They are all primitive pagans, with simple requirements. Little or no dress is worn other than a goatskin by men, and leaves or string by the women. There is no indigenous cotton industry, and cotton goods, which are increasingly worn to-day, especially around market centres, are all imported or manufactured by strangers, generally Moshis, in the Zongos.

Absence of Villages.

361 An important feature of the district is that the people live in scattered compounds, unlike the Dagombas and South Mamprusis who live in villages and hamlets. The distance between compounds varies considerably; at one time it was probably about the length of a good arrow shot, but closer building around centres of importance, as near markets and lorry termini, is resulting in the formation of towns. This can be seen at places like Bolgatanga, and near Government stations. Each compound resembles a miniature fort and in the past there is little doubt that it served as such: it is roughly elliptical in shape and consists of a number of round mud houses opening inwards; and the whole is enclosed by a high mud wall. Roofs are made either flat, of beaten mud, or conical, and thatched. A single narrow doorway, which can be heavily barricaded, gives entrance to the compound: the space inside is divided into compartments by low walls. Livestock are kept in an open compartment near the entrance. The land lying between compounds is farmed intensively and manuring forms a definite part of the farming system.

[231]
[241]

Fixed Cultivation.

[161] The high density of population necessitates a system of "fixed" cultivation. It is difficult to say whether the need for 241 "fixed" cultivation resulted in the people living on their land in

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412 mounted on a similar handle. Hoe-blades are now made from scrap iron, mainly parts of old motor cars and old railway sleepers; [177] a hoe is sold in the market for 2d. or 3d., which is well within the purchasing power of everyone. It is not many years, however, [326] since hoes were made from locally smelted iron; they were then not so easy to come by and some of the poorer farmers used hoes of hard wood.

241 The coarse nature of the soil enables a shallow cultivation to be given effectively with these light implements after a fall of rain. 134 When the ground is dry and hard, cultivation is very laborious and it is frequently neglected at a time when needed most. This is often the case early in the season when precarious rains make a soil-mulch desirable.

Preparation for Planting.

243 Two of the most important crops, early millet and guinea corn, are sown after the second big rain of the year, this is generally in the first week of April. The soil, which has been left untilled since the burn-over after the previous year's harvest, is very hard until humidity rises with the approaching rain, and there is very little time to do any preliminary cultivation. On the majority of farms the only preparation for sowing is to collect the remains of the previous season's crops into heaps and to burn, and sometimes to carry-out manure; very occasionally a little hoeing is done.

Planting Major Crops.

412 On the morning following the big planting rain the whole countryside turns out to do one of its few really full day's work 241 on the farm for the year. Men walk over the farm with stout sticks about 6' long, cut from "tcheea" (Nankani) (Anoegeissus leiocarpus), or "gopelaga" (Nankani) (Acacia sieberriana), sharpened at the end to a flat point, resembling a narrow-bladed oar; or sometimes fitted with a worn hoe blade. With these sticks, holes are prodded at random 2' 6" to 3' apart in the moist earth; 241 the soil being ejected with a twist of the wrists. Women and children follow the men with the seed of early millet and cowpeas mixed in a calabash. The calabash is held in the hand between the third and fourth fingers, and three to six seeds of early millet,